

ABBREVIATED PRELIMINARY ASSESSMENT CHECKLIST

This checklist can be used to help the site investigator determine if an Abbreviated Preliminary Assessment (APA) is warranted. This checklist should document the rationale for the decision on whether further steps in the site investigation process are required under CERCLA. Use additional sheets, if necessary.

Checklist Preparer:	<u>Nancy Shannon/Senior Project Scientist</u> (Name/Title)	<u>September 19, 2013</u> (Date)
	<u>205 Campus Drive, Edison, NJ 08837</u> (Address)	<u>(732) 417-5800</u> (Phone)
	<u>Nancy.Shannon@westonsolutions.com</u> (E-Mail Address)	

Site Name: Holy Trinity Cemetery

Previous Names (if any): none

Site Location: 5401 Robert Avenue
(Street)

Lewiston, New York, 14092
(City) (ST) (Zip)

Latitude: 43.148692° North **Longitude:** -79.032072° West (office building) (Reference [Ref]. 1).

Describe the release (or potential release) and its probable nature:

The Holy Trinity Cemetery encompasses 31 acres and is located in a rural, residential area as shown on Figures 1 and 2 in the Appendix. The cemetery is bordered to the north and east by Interstate 190, to the south by two other cemeteries, and to the west by Robert Avenue and a small residential community.

In 1978, the U.S. Department of Energy conducted an aerial radiological survey of the Niagara Falls region. More than 15 properties throughout the region were identified as having elevated levels of radiation above background. It is believed that, in the early 1960s, slag from the Union Carbide facility located on 47th Street in Niagara Falls was used as fill on the properties prior to paving. The Union Carbide facility processed ore containing naturally-occurring high levels of uranium and thorium to extract niobium. The slag contained sufficient quantities of uranium and thorium to be classified as a licensable radioactive source material. Union Carbide subsequently obtained a license from the Atomic Energy Commission (now the Nuclear Regulatory Commission) and the State of New York; however, the slag had been used as fill throughout the Niagara Falls region prior to licensing. Based on the original survey and subsequent investigations, it is believed that the radioactive Union Carbide slag was deposited at the Holy Trinity Cemetery property.

On February 11, 1980, the New York State Department of Health (NYSDOH) Bureau of Radiological Health and the Niagara County Health Department conducted a radiological survey of the Holy Trinity Cemetery site to identify areas of elevated radioactivity as a result of radioactive slag having been used on the property for fill. The survey was conducted based on information that the slag used at the cemetery was from the same source that was used at two other locations in nearby Niagara Falls that had been identified by the NYSDOH as containing elevated levels of radioactivity.

During the survey, cemetery personnel showed NYSDOH a slag pile located near the caretaker's garage in the western portion of the property. Cemetery personnel stated that this slag was used as fill for the cemetery roads throughout the property. Additionally, the slag was used as fill for the base of two proposed roadbeds that extended approximately 500 to 600 feet from the caretaker's garage northwest towards Roberts Avenue. At the time of the survey, the construction of these roads had been abandoned. The underlying slag base was covered with an unknown amount of soil and was left as an open field. Site access was not restricted.

Using an Eberline PRM 7 radiation meter, radioactivity of the slag pile was measured at 250 microroentgens per hour ($\mu\text{R/hr}$); readings along cemetery roads ranged from 5 $\mu\text{R/hr}$ (i.e., background concentration) to 30 $\mu\text{R/hr}$. Readings along the abandoned roadbeds ranged from 200 $\mu\text{R/hr}$ to 400 $\mu\text{R/hr}$. Samples of the slag were collected as part of the investigation; however, based on available information, the location of the collected samples cannot be determined. Laboratory analyses of the samples indicated detectable concentrations of potassium-40, uranium-235 and -238, radium-226, thorium-232, and one other isotope. Based on the quality of the laboratory data sheet, the exact concentrations of each isotope are difficult to determine.

On October 3, 2006, the New York State Department of Environmental Conservation (NYSDEC) and the Niagara County Health Department conducted a site visit at the Holy Trinity Cemetery. At that time, the slag pile that was located near the caretaker's garage was no longer on site. The current caretaker had no knowledge of the slag pile nor what happened to it. The northwest area of the cemetery where the buried, abandoned slag roadbeds were located was observed to be a well-maintained grass area. The caretaker indicated that children living nearby use this area for recreation. Since the site was last inspected in 1980, trees had grown through the abandoned slag roadbeds, pushing the slag to the surface.

As part of the site visit, NYSDEC conducted a radioactivity survey with an Exploranium GR-135. A survey conducted in the area where the former slag pile was thought to have been located did not show elevated levels of radioactivity. Readings taken while walking along the northern, buried, abandoned roadbed indicated levels of 200-300 $\mu\text{R/hr}$ at waist height and a surface contact reading of 450 $\mu\text{R/hr}$. Other readings include: 300-450 $\mu\text{R/hr}$ at waist height while walking along the southern, buried, abandoned roadbed, a contact reading of 570 $\mu\text{R/hr}$ near an asphalt apron off Robert Avenue, and a contact reading of 700 $\mu\text{R/hr}$ at exposed slag near a tree. Readings noted while walking between the two buried, abandoned roadbeds from the northwest portion of the property to the eastern portion of the property, as well as at Robert Avenue, ranged from 4-8 $\mu\text{R/hr}$. At the eastern corner of the property, there were several debris piles of branches, grass cuttings, rocks, broken headstones, and miscellaneous materials. One of the debris piles exhibited radioactivity levels of 30-55 $\mu\text{R/hr}$ at a distance of a few feet and 100 $\mu\text{R/hr}$ on contact; slag was not visibly evident on the pile. The remaining debris piles did not show any radioactivity above background levels.

NYSDEC collected four samples of the slag; the samples were analyzed for Isotopic Uranium and Isotopic Thorium, and underwent gamma-ray spectroscopy analysis. Laboratory analytical results indicated the presence of uranium-238/234 ranging from 114 to 1,664 picocuries per gram (pCi/g) and thorium-232 ranging from 114 to 898 pCi/g.

In May 2007, NYSDEC visited the site to identify contamination in the debris pile using gamma-ray spectroscopy. A 5-minute static reading was taken; Radium-226 was the only nuclide identified. An additional similar analysis was conducted on one of the roadbeds, confirming the presence of thorium-232.

On September 10, 2013, Weston Solutions, Inc. (WESTON[®]) conducted a reconnaissance of the site. The northwest portion of the property where the buried, abandoned slag roadbeds are located was observed to be a well-maintained grassy area. Several trees were observed to be growing in the grassy area. An office and attached maintenance building were also observed on site. A picnic bench and swing set are located on the north side of the building. Using a Ludlum 2221 Scaler Ratemeter, WESTON surveyed the property. Along the edge of the property at Robert Avenue gamma readings ranged from 10,000 to 12,000 counts per minute (cpm). Walking in the vicinity of the buried abandoned slag roadbeds, gamma readings ranged from 200,000 to 300,000 cpm with some spiked readings over 400,000 cpm. Slag from the roadbeds was observed to be pushing up through the maintained grass in several

locations. Additionally, slag was observed around the base of the trees that have grown in the grass field. The northeast corner of the property, where the one debris pile exhibited elevated radiation levels in 2006, is overgrown and contains numerous small and large debris piles of dirt, branches, rocks, and other materials. WESTON surveyed several of the debris piles that were accessible; gamma readings ranged from 8,000 to 10,000 cpm. WESTON also surveyed a drainage ditch that runs east to west from an area containing brush and small trees to Robert Avenue. As can be seen on Figure 2, the buried, abandoned slag roadbeds end at the drainage ditch. Gamma readings between the two roadbeds, where the former slag pile was staged in 1980, had readings around 200,000 cpm. Readings upgradient and downgradient of the roadbeds in the drainage ditch fell to 18,000 cpm and below. The drainage ditch was observed to be completely dry. Figure 3 depicts the gamma radiation levels detected during the survey.

There are an estimated 2,210 residents within 1 mile of the site and an estimated 42,668 residents within 4 miles of the site. The site is located approximately 0.5 mile east of the Niagara River and 0.5 mile west of a large reservoir that discharges into the Niagara River. There are no public or domestic groundwater wells utilized for drinking water within a 4-mile radius of the site. The population within a 4-mile radius of the site receives its drinking water supply from the Niagara Falls Water Board, which obtains water from the Niagara River.

Available information documents that radioactive slag is present on site and is releasing radioactivity into the environment; its presence may potentially affect on-site workers, children known to use the area for recreation, and the nearby residential population.

Part 1 - Superfund Eligibility Evaluation

If all answers are "no" go on to Part 2, otherwise proceed to Part 3.

	YES	NO
1. Is the site currently in CERCLIS or an "alias" of another site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Is the site being addressed by some other remedial program (Federal, State, or Tribal)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Are the hazardous substances potentially released at the site regulated under a statutory exclusion (e.g., petroleum, natural gas, natural gas liquids, synthetic gas usable for fuel, normal application of fertilizer, release located in a workplace, naturally occurring, or regulated by the NRC, UMTRCA, or OSHA)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Are the hazardous substances potentially released at the site excluded by policy considerations (i.e., deferred to RCRA corrective action)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Is there sufficient documentation to demonstrate that no potential for a release that could cause adverse environmental or human health impacts exists (e.g., comprehensive remedial investigation equivalent data showing no release above ARARs, completed removal action, documentation showing that no hazardous substance releases have occurred, or an EPA approved risk assessment completed)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Please explain all "yes" answer(s).

NA

Part 2 - Initial Site Evaluation

For Part 2, if information is not available to make a “yes” or “no” response, further investigation may be needed. In these cases, determine whether an APA is appropriate. Exhibit 1 parallels the questions in Part 2. Use Exhibit 1 to make decisions in Part 3.

If the answer is “no” to any of questions 1, 2, or 3, proceed directly to Part 3.

	YES	NO
1. Does the site have a release or a potential to release?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Does the site have uncontained sources containing CERCLA eligible substances?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Does the site have documented on-site, adjacent, or nearby targets?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

If the answers to questions 1, 2, and 3 above were all “yes” then answer the questions below before proceeding to Part 3.

	YES	NO
4. Does documentation indicate that a target (e.g., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Is there an apparent release at the site with no documentation of exposed targets, but there are targets on site or immediately adjacent to the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Is there an apparent release and no documented on-site targets or targets immediately adjacent to the site, but there are nearby targets (e.g., targets within 1 mile)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Is there no indication of a hazardous substance release, and there are uncontained sources containing CERCLA hazardous substances, but there is a potential to release with targets present on site or in proximity to the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Notes:

Available information documents the presence of radioactive slag on site.

EXHIBIT 1
SITE ASSESSMENT DECISION GUIDELINES FOR A SITE

Exhibit 1 identifies different types of site information and provides some possible recommendations for further site assessment activities based on that information. You will use Exhibit 1 in determining the need for further action at the site, based on the answers to the questions in Part 2. Please use your professional judgment when evaluating a site. Your judgment may be different from the general recommendations for a site given below.

Suspected/Documented Site Conditions		APA	Full PA	PA/SI	SI
1. There are no releases or potential to release.		Yes	No	No	No
2. No uncontained sources with CERCLA-eligible substances are present on site.		Yes	No	No	No
3. There are no on-site, adjacent, or nearby targets.		Yes	No	No	No
4. There is documentation indicating that a target (e.g., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site.	Option 1: APA →SI	Yes	No	No	Yes
	Option 2: PA/SI	No	No	Yes	NA
5. There is an apparent release at the site with no documentation of exposed targets, but there are targets on site or immediately adjacent to the site.	Option 1: APA →SI	Yes	No	No	Yes
	Option 2: PA/SI	No	No	Yes	NA
6. There is an apparent release and no documented on-site targets and no documented targets immediately adjacent to the site, but there are nearby targets. Nearby targets are those targets that are located within 1 mile of the site and have a relatively high likelihood of exposure to a hazardous substance migration from the site.		No	Yes	No	No
7. There is no indication of a hazardous substance release, and there are uncontained sources containing CERCLA hazardous substances, but there is a potential to release with targets present on site or in proximity to the site.		No	Yes	No	No

Part 3 - EPA Site Assessment Decision

When completing Part 3, use Part 2 and Exhibit 1 to select the appropriate decision. For example, if the answer to question 1 in Part 2 was “no,” then an APA may be performed and the “NFRAP” box below should be checked. Additionally, if the answer to question 4 in Part 2 is “yes,” then you have two options (as indicated in Exhibit 1): Option 1 --conduct an APA and check the “Lower Priority SI” or “Higher Priority SI” box below; or Option 2 -- proceed with a combined PA/SI assessment.

Check the box that applies based on the conclusions of the APA:

- | | |
|--------------------------------------------------------|------------------------------------------------------------------------------------|
| <input type="checkbox"/> NFRAP | <input type="checkbox"/> Refer to Removal Program - further site assessment needed |
| <input checked="" type="checkbox"/> Higher Priority SI | <input type="checkbox"/> Refer to Removal Program - NFRAP |
| <input type="checkbox"/> Lower Priority SI | <input type="checkbox"/> Site is being addressed as part of another CERCLIS site |
| <input type="checkbox"/> Defer to RCRA Subtitle C | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Defer to NRC | |

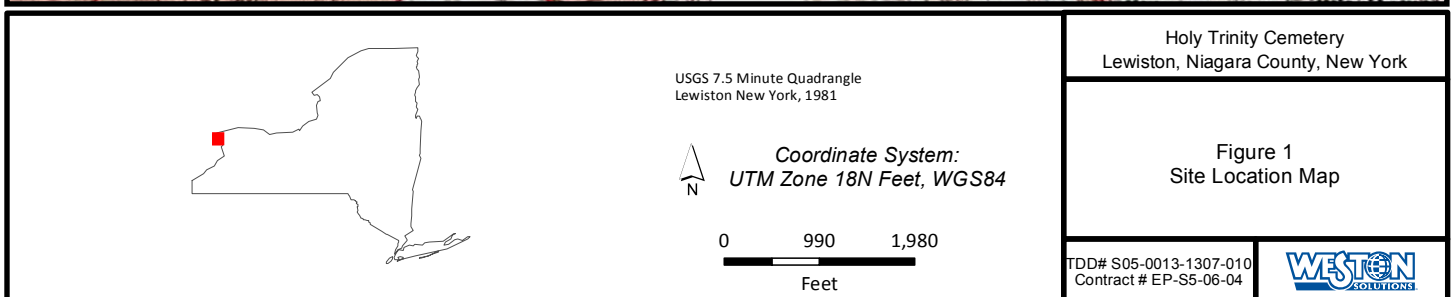
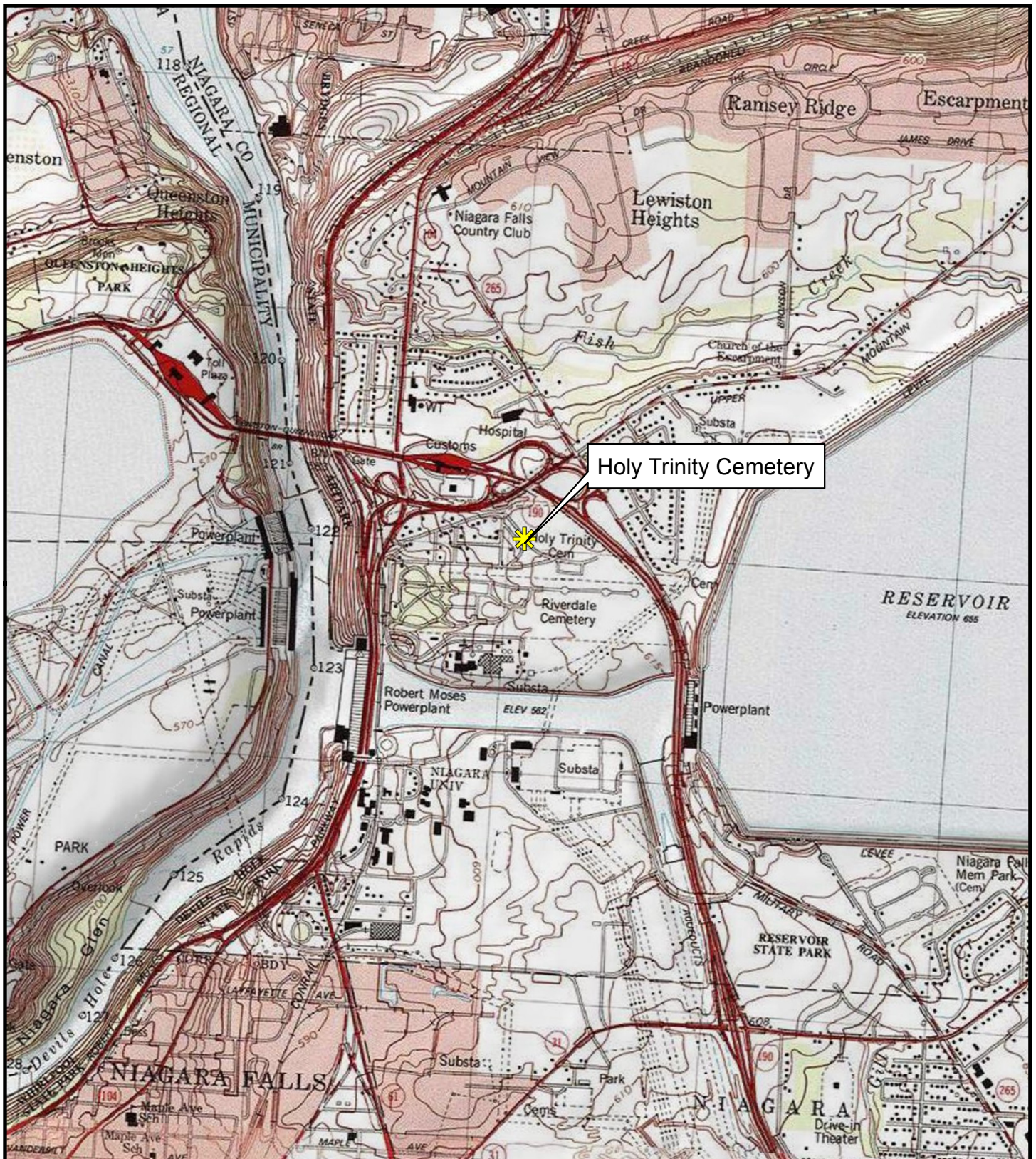
Regional EPA Reviewer:

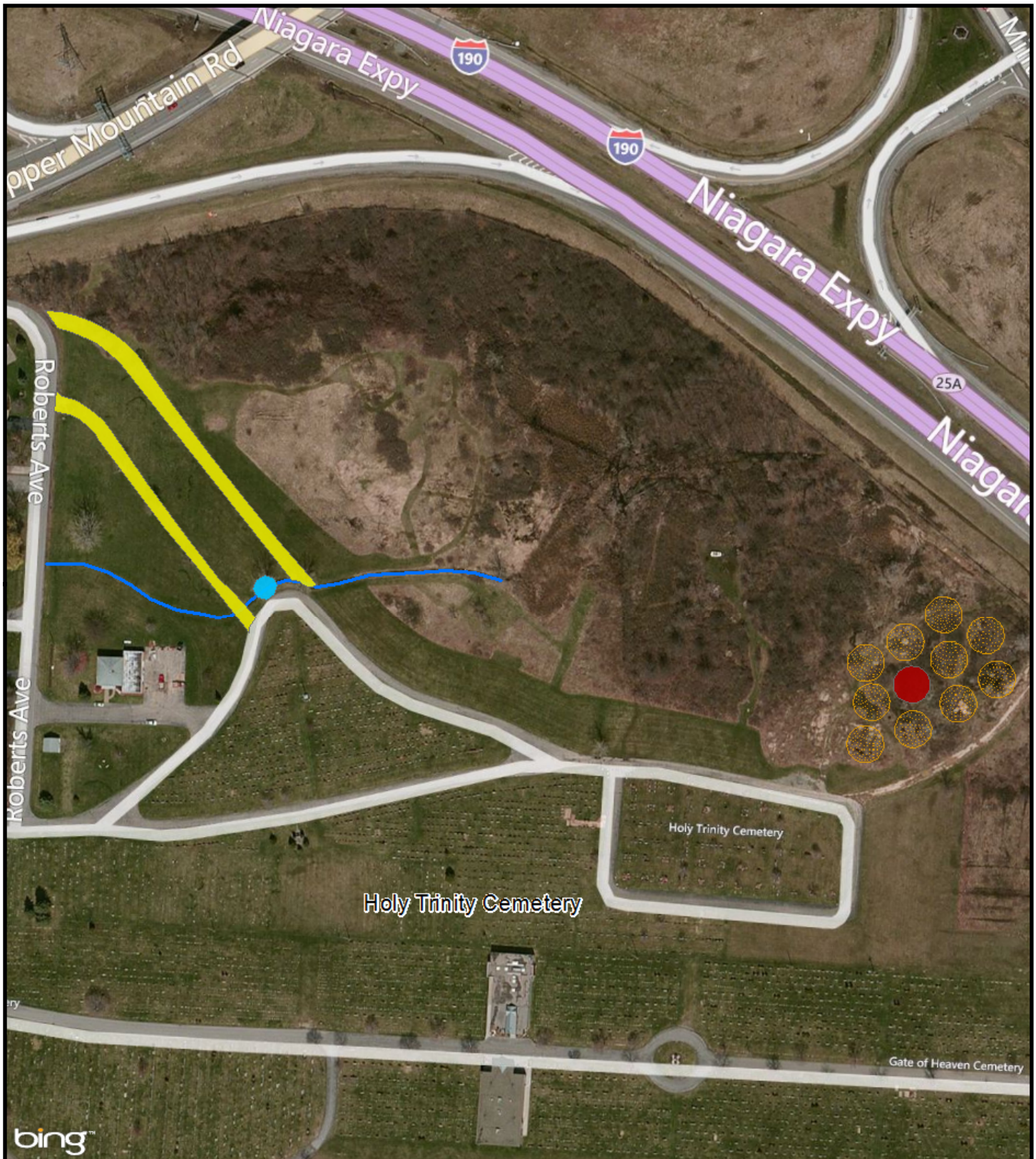
 Print Name/Signature

 Date

PLEASE EXPLAIN THE RATIONALE FOR YOUR DECISION:

The Higher Priority SI decision is based on the presence of radioactive slag, on-site targets (e.g., workers), and nearby targets (e.g., residences) potentially exposed to site-related contaminants.





Legend

- Debris Piles
- Proposed Roadways
- Indicates debris pile exhibiting elevated radioactivity
- Location of Slag Pile in 1980
- Drainage Ditch

Aerial Imagery - ESRI, Bing Mapping Service
Map features based on Ref. 3: NYSDEC.
Field Investigation Report. October 3, 2006.



Coordinate System:
UTM Zone 18N Feet, WGS84

0 100 200
Feet

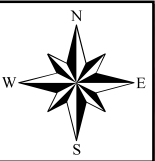
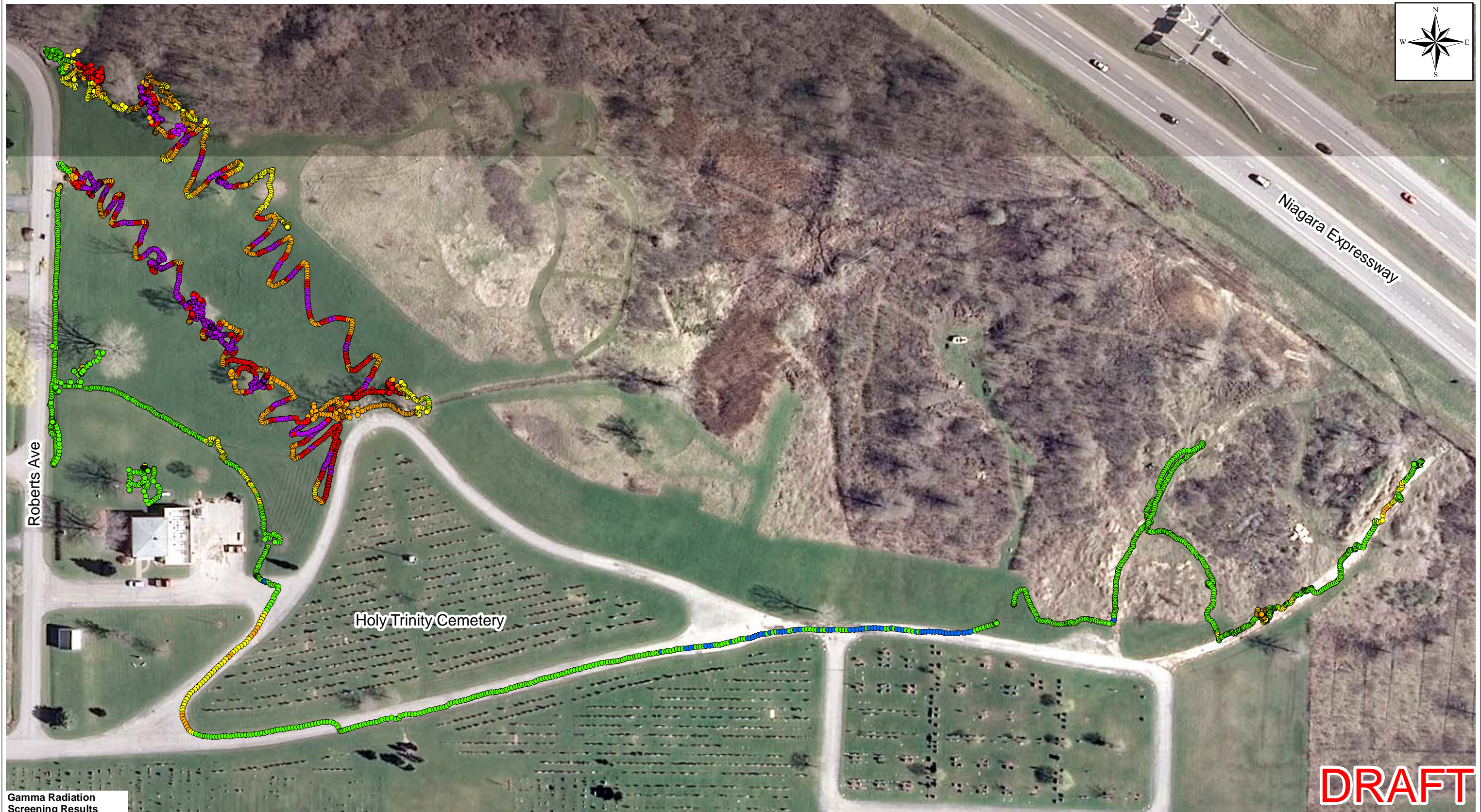
Holy Trinity Cemetery
Lewiston, Niagara County, New York

Figure 2
Site Layout Map

TDD# S05-0013-1307-010
Contract # EP-S5-06-04



P:\SAT2\2013 NY RAD Sites\HolyTrinityCemetery\MXD\13612_HTC_Recon.mxd



**Gamma Radiation
Screening Results
(Counts per Minute)**

- Less Than 9,000
- 9,001 - 18,000
- 18,001 - 30,000
- 30,001 - 100,000
- 100,001 - 300,000
- Greater Than 300,000

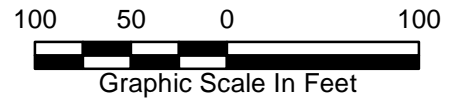
NOTES:

1. Background gamma radiation screening level is approximately 9,000 CPM.
2. Gamma radiation screening was conducted on 09/10/2013.

SOURCES:

1. NYS Division of Homeland Security and Emergency Services - Office of Cyber Security. Niagara County 12 Inch Ortho (4bd). <http://www.orthos.dhses.ny.gov/?id=974130>. November 2011.
2. NYS Division of Homeland Security and Emergency Services - Office of Cyber Security. Erie County 12 Inch Ortho (4bd). <http://www.orthos.dhses.ny.gov/?id=974130>. November 2011.

SCALE:



PROJECT:

Holy Trinity Cemetery

CLIENT NAME:

EPA

TITLE:

Gamma Radiation Screening Results Map
Holy Trinity Cemetery
Lewiston, NY



DATE:

September 2013

FIGURE #:

1

REFERENCES

1. Google Earth. Aerial Photograph Indicating Latitude and Longitude Printed from Google Earth®. On-line Address: www.earth.google.com. September 17, 2013. [1 page]
2. New York State Energy Office. Correspondence Regarding Uranium Ore Residues in Niagara Falls. May 24, 1979. [2 pages]
3. NYSDEC. Summary of Records in File. Dunn Tire and Rapids Bowling Center Site. February 2, 2013. [4 pages]
4. NYSDOH. Site Survey Memo to File. Bureau of Radiological Health. February 11, 1980. [3 pages]
5. NYSDOH. Analytical Data. Division of Laboratory and Analytical Research. April 25, 1980. [1 page]
6. NYSDEC, Division of Solid and Hazardous Materials, Bureau of Hazardous Waste and Radiation Management, Radiation Section. Field Investigation Report. October 3, 2006. [36 pages]
7. NYSDEC, Division of Solid and Hazardous Material, Bureau of Hazardous Waste and Radiation Management, Radiation Section. Field Investigation Report. May 9, 2007. [1 page]
8. WESTON. Region 5 Superfund Technical Assessment and Response Team (START). Site Logbook No. 2101-4J-BJCA, Holy Trinity Cemetery. September 10, 2013. [5 pages]
9. Ricks, Corey. Weston Solutions, Inc. (WESTON). Project Note to File, Subject: Population Analysis for Holy Trinity Cemetery. Weston Solutions, Inc. August 6, 2013. [1 page]
10. Ricks, Corey. WESTON. Project Note to File, Subject: Drinking Water Wells Within a 4-Mile Radius of the Holy Trinity Cemetery Site. Information Obtained From: New York State Geographic Information Systems, Water Wells. Online Address: <http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1203>. August 6, 2013. [1 Page]